

Morgan

U.S. DEPARTMENT OF AGRICULTURE

DATE

REFERENCE SLIP

9/4/85

TO

Dr. H. E. Brown, RL
Screwworm Research

☐ ACTION

☐ NOTE AND RETURN

☐ APPROVAL

☐ PER PHONE CALL

☐ AS REQUESTED

☐ RECOMMENDATION

☐ FOR COMMENT

☐ REPLY FOR SIGNATURE OF

☒ FOR INFORMATION

☐ RETURNED

☐ INITIALS

☐ SEE ME

☐ NOTE AND FILE

☐ YOUR SIGNATURE

REMARKS

Handled:

Attached please find the
most recent APHIS-15
prioritized list of research
needs for FY87. Please note
that the development of
screwworm strains is 5th
of 74 items for the entire
agency.

FROM

Laph

44-7001-515

VETERINARY SERVICES RESEARCH NEEDS FOR FY 1987

1. Obtain more knowledge concerning the transmission of animal diseases by embryos, especially diseases of economic significance such as bluetongue, infectious bovine rhinotracheitis (IBR), and pseudorabies.
2. Develop better immunological methods for brucellosis.
3. Develop a better understanding of the host-parasite interaction for brucellosis.
4. Develop a more efficient reading method for devices which permanently identify animals, especially swine.
5. Develop a new factory strain of screwworm flies.
6. Develop better diagnostic methods for bluetongue to identify latent and carrier animals.
7. Improve diagnostic methods for exotic Newcastle disease to make them more definitive and rapid.
8. Develop an alternative serological test to the complement-fixation (CF) diagnostic test for bovine babesiosis.
9. Conduct research to determine if foot-and-mouth disease (FMD) virus and other animal pathogens can, in fact, infect and propagate in mouse cell lines that have been used to produce hybridomas. Primary emphasis should be concentrated on the introduction of FMD virus through the addition of FMD-contaminated bovine fetal calf serum into cell lines.
10. Develop better therapeutic and diagnostic methods for equine diseases, including more rapid, simple, definitive diagnostic tests for equine diseases of concern, especially to replace CF tests for equine piroplasmiasis and contagious equine metritis.
11. Obtain greater scientific knowledge and a better understanding of the epidemiology of vesicular stomatitis (VS) and develop improved diagnostic methods for VS, especially under field conditions.
12. Obtain more knowledge concerning the transmission of bluetongue virus by semen.
13. Develop methods of disposing of used pesticides by degradation of the chemicals used which will meet EPA requirements.
14. Develop a rapid, practical diagnostic test for heartwater (Cowdria ruminantium) infection in live cattle and goats.
15. Develop better diagnostic tests for pseudorabies and obtain more knowledge of the transmission of pseudorabies.

16. Develop better diagnostic methods for brucellosis.
17. Improve the ability to detect pathogens in imported meat, animal products, and associated byproducts from countries with diseases exotic to the U.S.
 - a) Establish the temperature/time combination required to heat different thicknesses of meat to a temperature which would destroy FMD virus and its effectiveness measured by a temperature sensitive disc.
 - b) Derive a mathematical formula for thermal inactivation of FMD virus in ground beef.
 - c) Detection of FMD virus in cream, butter, casein, and cottage cheese through animal feeding trials.
 - d) Effect of ultrafiltration on survival of FMD virus in whole and skim milk.
 - e) Determine the period of time FMD virus can be recovered from dried rennets.
 - f) Determine the survivability of FMD virus in cheese with meat added and heated to 85°C. for 2 minutes.
 - g) Determine what disinfectants can be utilized to destroy FMD virus in large volumes of milk from FMD-positive premises.
 - h) Determine the effect of detergents on the stability of FMD virus in casein.
 - i) Determine the stability of FMD virus in milk and dairy products of caprine and bovine species.
 - j) Determine survivability of porcine viruses FMD, ASF, SVD, and HC in acetone dried, vacuum-oven processed pancreatic powder.
 - k) Study the effect of pH. 1.7 at 60°C. and pH. 3.6 at 55°C. for various lengths of time (10 minutes, 30 minutes, 1 hour, 3 hours) on pituitary glands, lymph nodes, pancreas, and serum (bovine and porcine).
 - l) Efficacy of ethylene oxide on FMD, ASF, SVD, and HC for trophies, hides, and pharmaceutical powder.
18. Improve diagnostic methods for avian influenza to determine if active infection exists in seropositive birds and determine the susceptibility for other avian species to lethal and other avian influenza viruses.
19. Obtain more knowledge about the transmission of bovine TB between bison and cattle.
20. Develop better therapeutic agents (chemical control) for resistant strains of cattle fever ticks.
21. Develop more effective systemic and conventional pesticides for animal use, especially animals in transit.
22. Develop better bovine carcass identification so that tuberculosis-infected animals can be traced to their county of origin.

23. More knowledge of the vector transmission of bluetongue.
 - a) Effects of vector stress on active and congenital bluetongue infection in cattle and sheep, particularly actions of bluetongue and related viruses in the host animal.
 - b) Vector competence of hematophagous insects for arboviruses of concern.
 - c) Immunochronic study of virologic and immunologic responses of ruminants to bluetongue and other arboviruses.
 - d) Physiology, behavior, and taxonomy of Culicoides and other vectors of arbovirus diseases.
24. Develop better diagnostic methods for scrapie.
25. Improve the disposal method for foreign animal disease contaminated manure and urine.
26. Develop a disinfectant for airplanes that is noncorrosive but effective for animal diseases exotic to the United States.
27. Develop better immunizing methods for avian influenza.
28. Develop better diagnostic methods for bovine leukosis.
29. Obtain a better knowledge of transport stress on livestock.
30. Develop better ~~screwworm~~-rearing methods to maintain a more effective barrier.
31. Determine the efficacy and safety of disinfectants for foreign animal disease pathogens.
32. Develop better serological diagnosis of Mycobacterium bovis.
33. Develop better diagnostic methods for mycoplasma in poultry.
34. Obtain more knowledge of the antigens associated with the stimulation of immunity for certain agents.
35. Obtain a better understanding of the exercise needs of laboratory animals.
36. Develop better immunization methods for pseudorabies.
37. Obtain more knowledge of the pathogenesis of avian influenza.
38. Develop better diagnostic methods for the two types of malignant catarrhal fever.
39. Develop a more rapid identification of mycobacteria.
40. Develop better biological control of cattle fever ticks and determine the effect of the environment on biological control of tick eradication.

41. Obtain a better understanding of the role of alternate hosts in cattle tick spread.
42. Develop better methods of decontaminating carcasses affected with foreign animal diseases.
43. Develop better immunizing agents for bluetongue in sheep.
44. Develop a better diagnostic test for caprine arthritic encephalitis.
45. Develop better therapeutic methods for contagious equine metritis.
46. Obtain a better understanding of the geographic distribution of anaplasmosis.
47. Obtain more knowledge about the immune mechanism of respiratory syncytial virus, vesicular stomatitis virus, and mammalian mycoplasma and chlamydial infections.
48. Improve identification and characterization of environmental and genetic factors which contribute to screwworm strain deterioration, etc.
49. Develop a better understanding of the fundamental genetics of screwworm.
50. Obtain more knowledge of the pathogenicity of the hemagglutinating virus entering the U.S. in imported birds.
51. Develop better diagnostic methods for lymphoproliferative disease in turkeys.
52. Develop better serological diagnostic methods and immunizing agents for fowl cholera.
53. Obtain greater knowledge of the transport environment and the stress it causes laboratory animals.
54. Develop better methods of detecting acaricide resistance.
55. Develop better immunizing agents for fowl cholera.
56. Develop improved therapeutic regimes and rapid diagnostic and characterization tests for chlamydiosis.
57. Obtain greater knowledge of the pathogenicity of bacterial agents entering the United States with imported birds.
58. Improve the diagnostic tests for contagious bovine pleuropneumonia (CBPP) and contagious caprine pleuropneumonia (CCPP).
59. Obtain a better understanding of the transmission and pathogenesis of the two types of malignant catarrhal fever (MCF).

60. Obtain a better understanding of the pathogenesis of African swine fever.
61. Develop methods of preventing vertical transmission and competitive exclusion for salmonella.
62. Develop better therapeutic methods for brucellosis.
63. Develop better screwworm fly attractants and fabrication of swormlure in order to maintain a more effective/efficient screwworm barrier.
64. Obtain a better knowledge of the pathogenicity of marine calicivirus for swine.
65. Obtain a better knowledge of the natural transmission, reservoirs, and distribution of caliciviruses (including marine sources) that have the potential to cause vesicular exanthema in swine.
66. Increase the knowledge of diseases of fish.
67. Establish more scientific knowledge about arthropod-borne diseases.
 - a) Characterize the competence of indigenous arthropods to serve as vectors of exotic diseases.
 - b) Improve methods for the control of arthropod vectors of foreign animal diseases.
 - c) Develop methods to detect and prevent acaricide resistance.
 - d) Develop an arthropod disease transmission model; i.e., vector-pathogen-host interactions.
 - e) Determine the biology and ecology of Culicoides and other arthropods.
 - f) Develop control technologies for arthropod vectors, including area treatments, systematic treatments, and integrated management strategies.
68. Obtain a better understanding of screwworm ecology and population dynamics in Mexico, Central America, and the Caribbean.
69. Develop better sterile fly distribution schema to maintain a more effective barrier.
70. Obtain a better understanding of the pathobiology of infectious bovine rhinotracheitis versus porcine pseudorabies and rinderpest viruses.
71. Develop a practical test to verify that Parma hams have been properly aged.
72. Develop better Screwworm Adult Suppression Systems (SWASS) distribution schema to maintain a more effective/efficient screwworm fly barrier.
73. Determine which avian species can serve as carriers of exotic Newcastle disease.
74. Develop a means to control Hemophilus as it interacts with other disease-causing organisms.



United States
Department of
Agriculture

Animal and
Plant Health
Inspection Service

*Copies to Tuxtla
Scientists*

Subject: Technical Meeting—Tuxtla Gutierrez

To: R. A. Bram
National Program Leader
Insects Affecting Man and
Animals and Parasitology

Date: June 5, 1985

In my opinion, the technical meeting held in Tuxtla Gutierrez, May 22-23, 1985, was a great success. The opportunity to exchange information and to discuss specific needs for research and/or methods development made the meeting worthwhile. As a new participant in the screwworm program, the meeting was especially important in understanding the current restraints as well as the possibilities for the future.

In addition, I am pleased to see that additional steps are being taken to improve communication between our two agencies in Tuxtla. Our program needs the best technical assistance available, and I am sure that in order to provide the type of assistance needed, the Agricultural Research Service (ARS) needs an open line of communication in order to fully understand the day-to-day problems we are encountering. I believe the screwworm program is a program of which we can all be proud. The contributions of ARS have been most noteworthy.

You can be assured that we will continue to work with you and the ARS staff in this most important work.

William W. Buisch

W. W. Buisch
Acting Assistant Deputy Administrator
International Programs
Veterinary Services

